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- The VALMONT (Validation of ALuminium MOlybdenum uranium fuel for NeuTronics) experimental program performed in 2004 in the MINERVE reactor of CEA Cadarache aimed at
 - qualifying the HORUS3D (HOrowitz Reactor simulation Unified System) neutronics calculation route used for the development of the JHR (Jules Horowitz Reactor) core;
 - thus to adapt to UMo/Al LEU high-density fuel specificities.

- The program is composed of 2 parts
 - the measurement of reactivity effect of UAl/Mo fuel using the oscillation technique with an accuracy on measurements around 1% (1σ) to study the differential effects of the fuel density, the ^{235}U enrichment, of the Molybdenum content and of the matrix;
 - gamma-spectroscopy measurements (axial power profiles and conversion ratio of ^{238}U) on a dedicated UMo/Al fuel pin to characterize the production and absorption effects inside the fuel.

- Results
 - excellent agreement between calculations and experiments about reactivity effect measurements showing the ability of HORUS3D to correctly take into account the UMo/Al LEU high-density fuel specificities;
 - good agreement between MCR and axial power profile experiments and calculations
 - ➡ qualifies HORUS3D for simulating production and absorption effects inside UAl/Mo fuel;
 - overall excellent agreement between high accuracy experiments and calculations allowed to qualify the HORUS3D neutronics calculation route for UMo/Al fuel.